GLOBALLY HARMONIZED SYSTEM

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Why Did OSHA Align the HCS with GHS?

- A common, coherent approach to classifying and communicating chemical hazards
  - Harmonized definitions of hazards
  - Specific criteria for labels
  - Harmonized format for safety data sheets

Why Did OSHA Align the HCS with GHS?

- The GHS approach is designed to improve comprehensibility, and thus the effectiveness of the HCS, and help to further reduce illnesses and injuries
- Increase the quality and consistency of information provided to the workers, employers and chemical users
- Other benefits include facilitation of international trade in chemicals

Principles & Assumptions

- OSHA has modified only the provisions of the HCS that must be changed to align with the GHS
  - The basic framework of the HCS remains the same
    - Chemical manufacturers and importers are responsible for providing information about the identities and hazards of chemicals they produce or import
    - All employers with hazardous chemicals in their workplaces are still required to have a hazard communication program, and provide information to employees about their hazards and associated protective measures
- OSHA has maintained the overall current level of protection of the HCS

Principles & Assumptions

- Other aspects of the standard have minimal modifications in terminology to make them consistent with GHS
  - The scope and application is basically unchanged, maintaining practical accommodations made by OSHA
  - Written hazard communication program requirements, worker training, and trade secret provisions are all largely unchanged from the existing rule

Notable Changes

- Using “hazard classification” rather than “hazard determination” (along with related terms)
- Labels are more defined
  - Product identifier, pictogram, signal word, hazard statement (s), precautionary statement(s), name, address and telephone number
- Safety Data Sheets
  - Formalized the format and changed the name
- Bulk of the technical requirements in Appendices, rather than in the primary paragraphs of the regulatory text

Organization of the Final Rule

(a) Purpose
(b) Scope and Application
(c) Definitions
(d) Hazard Classification
(e) Written Hazard Communication Program
(f) Labels and Other Forms of Warning
(g) Safety Data Sheets
(h) Employee Information and Training
(i) Trade Secrets
(j) Effective Dates

Appendices

- Appendix A, Health Hazard Criteria (Mandatory) (NEW)
- Appendix B, Physical Hazard Criteria (Mandatory) (NEW)
- Appendix C, Allocation of Label Elements (Mandatory) (NEW)
- Appendix D, Safety Data Sheets (Mandatory) (NEW)
- Appendix E, Definition of "Trade Secret" (Mandatory)
- Appendix F, Guidance for Hazard Classifications re: Carcinogenicity (Non-Mandatory) (NEW)

(c) Definitions

- Terms no longer being defined due to changes in terminology:
  - Hazard warning; identity; and material safety data sheet (MSDS)
- Terms revised to be consistent with the GHS:
  - Chemical; chemical name; hazardous chemical; health hazard; label; mixture; physical hazard; and trade secret

(c) Definitions

- The following terms are being added to the definitions section:
  - Classification; hazard category; hazard class; hazard not otherwise classified; hazard statement; label elements; pictogram; precautionary statement; product identifier; pyrophoric gas; safety data sheet (SDS); signal word; simple asphyxiant; and substance
  - These terms are primarily related to the changes in approach to evaluating hazards, and providing label information

Use of the Term “Chemical”

- OSHA previously used “chemical” to indicate both substances and mixtures
- OSHA has decided to continue using “chemical” in the final rule as meaning those situations where both substances and mixtures are being addressed
- “Hazardous chemical" means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.

Hazards Not Otherwise Classified

- One unique aspect to the OSHA's final rule is the definition of "hazards not otherwise classified"
- This definition was added to ensure that hazards currently covered by HCS continue to be covered
- Changes from current practices are not anticipated (used during literature reviews)

Hazards Not Otherwise Classified

"Hazard not otherwise classified (HNOC)" means an adverse physical or health effect identified through evaluation of scientific evidence during the classification process that does not meet the specified criteria for the physical and health hazard classes addressed in this section. This does not extend coverage to adverse physical and health effects for which there is a hazard class addressed in this section, but the effect either falls below the cut-off value/concentration limit of the hazard class or is under a GHS hazard category that has not been adopted by OSHA (e.g., acute toxicity Category 5).

Hazards Not Otherwise Classified

- Information will be required on the safety data sheets in Section 2
- Hazard information on the label, is not mandatory, but can be provided under supplementary information
- Such hazards must also be addressed in worker training

(d) Hazard Classification

- Each type of hazard covered is considered a "hazard class" —such as acute toxicity, carcinogenicity
- However, most of these hazard classes are also sub-divided into "hazard categories" to reflect the degree of severity of the effect
- This is the concept of "classification" —rather than just determining that there is a hazardous effect (carcinogenicity), there is also a finding of how severe that effect might be (Category 1 or 2)

(d) Hazard Classification: Classification Provisions

- Chemical manufacturers and importers must classify each chemical they produce or import:
  - Determine the appropriate hazard classes and associated hazard categories
  - Base this on an evaluation of the full range of available data/evidence on the chemical (no testing is required)
  - Use Appendix A for health hazard criteria and Appendix B for physical hazard criteria
  - The introduction to Appendix A provides the general approach to classification, including bridging principles

Health Hazards

Hazard Class	**Hazard Category**			
Acute Toxicity	1	2	3	4
Skin Corrosion/Irritation	1A	1B	1C	2
Serious Eye Damage/ Eye Irritation	1	2A	2B	
Respiratory or Skin Sensitization	1			
Germ Cell Mutagenicity	1A	1B	2	
Carcinogenicity	1A	1B	2	
Reproductive Toxicity	1A	1B	2	Lactation
STOT – Single Exposure	1	2	3	
STOT – Repeated Exposure	1	2		
Aspiration	1			
Simple Asphyxiants	Single Category			

Physical Hazards

Hazard Class	Hazard Category						
Explosives	Unstable Explosives	Div 1.1	Div 1.2	Div 1.3	Div 1.4	Div 1.5	Div 1.6
Flammable Gases	1	2					
Flammable Aerosols	1	2					
Oxidizing Gases	1						
Gases under Pressure Compressed Gases Liquefied Gases Refrigerated Liquefied Gases Dissolved Gases	1						
Flammable Liquids	1	2	3	4			
Self-Reactive Chemicals	Type A	Type B	Type C	Type D	Type E	Type F	Type G
Pyrophoric Liquids	1						
Pyrophoric Solid	1						
Pyrophoric Gases	Single category						
Self-heating Chemicals	1	2					
Chemicals, which in contact with water, emit flammable gases	1	2	3				
Oxidizing Liquids	1	2	3				
Oxidizing Solids	1	2	3				
Organic Peroxides	Type A	Type B	Type C	Type D	Type E	Type F	Type G
Corrosive to Metals	1						
Combustible Dusts	Single Category						

(f) Labels and Other Forms of Warning

- Required Elements
  - Product identifier
  - Signal words
  - Hazard statements
  - Pictograms
  - Precautionary statements
  - Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party

- A new Appendix C, Allocation of Label Elements, has been provided to indicate the label requirements by hazard class and category

Harmonized Information

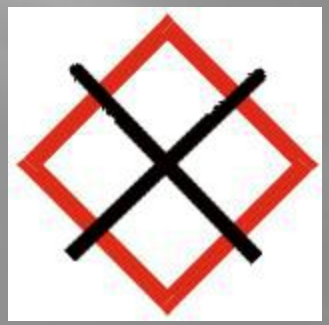
"Pictogram" means a composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight pictograms are designated under this standard for application to a hazard category.

HCS Pictograms and Hazards

Health Hazard  • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	**Flame**  • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self Reactives • Organic Peroxides	**Exclamation Mark**  • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  • Gases under pressure	**Corrosion**  • Skin Corrosion/ Burns • Eye Damage • Corrosive to Metals	**Exploding Bomb**  • Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle  • Oxidizers	**Environment** (Non-Mandatory)  • Aquatic Toxicity	**Skull and Crossbones**  • Acute Toxicity (fatal or toxic)

Pictograms

- Red borders required
- No blank pictograms



Additional Requirements

- Harmonized information is to be provided together on the label
- All information is to be prominently displayed, and in English (although other languages may also be provided)
- The requirement that information not conflict with transport labels remains the same

Workplace Labeling

- OSHA is maintaining the approach used in the current HCS that allows employers to use workplace-specific labeling systems as long as they provide the required information
- However, such workplace label systems may need to be updated to make sure the information is consistent with the new classifications
- NFPA/HMIS Systems
  - (ratings systems v. classification)

Label Example

New style Label (GHS)

Xyz... Chemical



Warning

Flammable liquid and vapor
Harmful if swallowed
May cause damage to organs (liver)
May cause damage to organs through prolonged or repeated exposure (heart)
Suspected of damaging fertility

Keep away from heat, sparks, open flames and hot surfaces – No smoking. Do not breathe vapors. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required Wear protective gloves and eye protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Keep container tightly closed. Ground container and receiving equipment. Use explosion-proof electrical, ventilating, lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Store locked up in a well ventilated place. Keep cool. Dispose of contents and container in accordance with local, state and federal regulations.

First aid:

If swallowed: Call a doctor if you feel unwell. Rinse mouth.
If on skin or hair: Remove immediately all contaminated clothing. Rinse skin with water.
If exposed or if you feel unwell: Call a doctor.

Fire:

In case of fire: Use water spray, foam, dry chemical or carbon dioxide (CO_2) for extinction.

GHS Company,123 Global Drive, Cincinnati, OH Telephone (800) 555-8888

Sample HS85 Label

HS85

Warning

Batch number: 85L6543

Harmful if swallowed. Wash hands and face thoroughly after handling. Do not eat, drink or smoke when using this product. Dispose of contents/container in accordance with local, state and federal regulations.

First aid: If swallowed: Call a doctor if you feel unwell. Rinse mouth.

GHS Example Company, 123 Global Circle, Anyville, NY 130XX
Emergency Telephone (888) 888-8888

(g) Safety Data Sheets

This paragraph has been extensively re-written to incorporate a uniform format.

(g) Safety Data Sheets

- 16-section safety data sheet (SDS)
- Several sections will not be mandatory since they address information outside OSHA's jurisdiction (Sections 12-15)
- A new Appendix D, Safety Data Sheets, provides the details of what is to be included in each section

Safety Data Sheet Format

1.Identification of the substance or mixture and of the supplier
2.Hazards identification
3.Composition/information on ingredients
4.First-aid measures
5.Fire-fighting measures
6.Accidental release measures
7.Handling and storage
8.Exposure controls/personal protection.
9.Physical and chemical properties
10.Stability and reactivity
11.Toxicological information
12.Ecological information (non-mandatory)
13.Disposal considerations (non-mandatory)
14.Transport information (non-mandatory)
15.Regulatory information (non-mandatory)
16.Other information, including date of preparation or last revision

(h) Employee Information and Training

- Although this paragraph remains essentially the same, updates include
  - Training to include label elements and new safety data sheet format - by December 1, 2013
  - Training to reflect any new hazards identified in the workplace - by June 1, 2016

(i) Trade Secrets

- Generally consistent with HCS 1994
- However, because this final rule requires disclosure of the percentage composition of mixtures or concentration from the SDS
  - HCS 1994 did not require disclosure of this information
  - Manufacturers may still claim trade secret protection for this requirement
- Some clarifications were made in the final rule

(j) Effective Dates

Effective Completion Date	Requirement(s)	Who
December 1, 2013	Train employees on the new label elements and safety data sheet (SDS) format.	Employers
June 1, 2015* December 1, 2015	Compliance with all modified provisions of this final rule, except: The Distributor shall not ship containers labeled by the chemical manufacturer or importer unless it is a GHS label	Chemical manufacturers, importers, distributors and employers
June 1, 2016	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.	Employers
Transition Period to the effective completion dates noted above	May comply with either 29 CFR 1910.1200 (the final standard), or the current standard, or both	Chemical manufacturers, importers, distributors, and employers

Questions?